

## **Historic, Archive Document**

Do not assume content reflects current scientific knowledge, policies, or practices.



Reserve

1.9422  
A5B77

UNITED STATES  
DEPARTMENT OF AGRICULTURE  
LIBRARY



RESERVE

BOOK NUMBER 1.9422  
A5B77

745652

## THE BRITISH WAR-TIME COLD STORAGE PROGRAM

67

Otie M. Reed,  
Assistant Deputy Director,  
U.S. Food Distribution Administration.

in collaboration with

✓ Loyd V. Steere,  
Agricultural Attaché, American Embassy,  
London, England.

December 1942.

54

April  
1901

THE BRITISH WAR-TIME COLD STORAGE PROGRAM

The facts and considerations respecting the British war-time cold storage program developed in this brief paper may be summarized as follows:

1. The cold storage control program developed by the British during the war is but one aspect of an integrated system of food control which governs prices, distribution, and handling of food throughout trade channels through to allocation and disposition of food among consumers.

2. Food control systems, particularly for major foods, are rigid and complete. No important element of food handling is left unregulated because British experience shows that regulation of all steps in the processing and marketing chain is necessary to the conduct of a successful food program.

3. The British have been under siege conditions since the outbreak of war. While in peace time storage stocks were relatively small, the necessity for assuring the proper handling of the food supply under the conditions of siege that have prevailed, and to guard against shortages in case of disruption of shipping, have led to rigid control of storage. Major reasons for this rigid control are (1) the need for large stocks, (2) need for proper diversion of stocks, i.e. development of stocks outside bombing target areas and as an adjunct of feeding during invasion, (3) control of storage aids materially in the control of transport and in the success of schemes designed to conserve transport, and (4) control of storage is of great aid in programs designed to control consumer off-take (rationing).

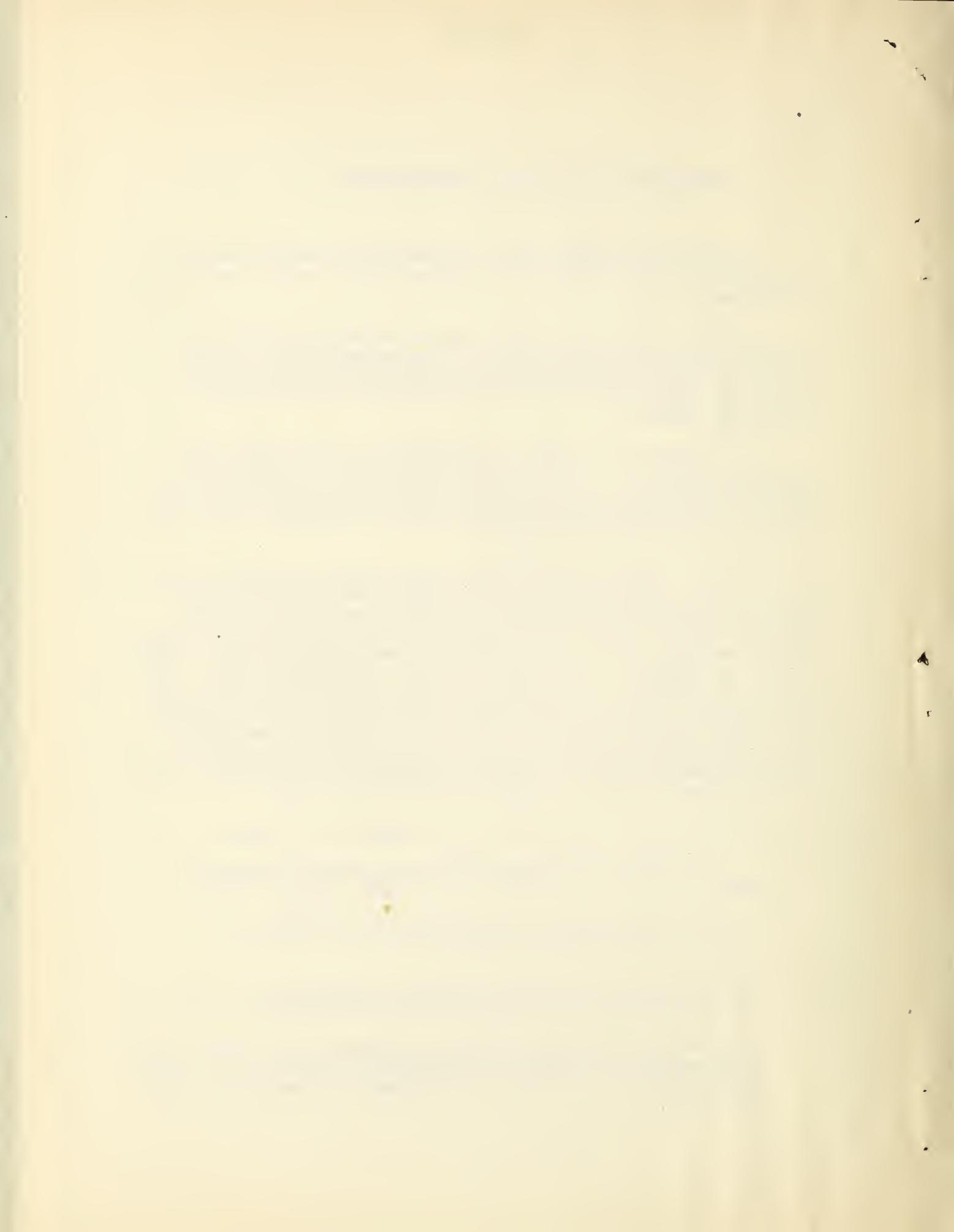
4. The control program for cold storage is as follows:

(a) All cold storage plants of more than 2,000 cubic feet are under the direct control of the Ministry of Food.

(b) The Ministry of Food controls the movement of product into and out of storage.

(c) The rates which cold storage operators may charge for their services are established by the Ministry.

(d) The Ministry controls the temperature at which stocks must be held, the manner in which they are stowed, and, in fact, all handling of stored goods in storage is accomplished at the



order of the Ministry of Food. The effect, from the handling point of view, is practically the same as if the Ministry owned and operated the cold storage warehouses.

(e) Cold storage warehousemen or companies are guaranteed a minimum gross return over direct costs of 2d. per cubic foot, and retain only 25 percent of the gross return over direct costs above 6d. per cubic foot. Thus, a minimum return is guaranteed, and maximum returns are limited with 75 percent of the gross in excess of 6d. per cubic foot reverting to the Ministry of Food. These "excess" rebates are paid into the Ministry's Cold Storage Account, and will be used in making up at least a part of the deficits incurred by virtue of the minimum guarantee of 2d. per cubic foot.

5. The scheme is administered through the Cold Storage Division of the Divisional and Local Services Department of the Ministry of Food. Rules and regulations governing cold storage operations are issued by the Cold Storage Division under general grants of power and general rules and regulations (Statutory Rules and Orders) issued by the Ministry of Food pursuant to authority contained in the Defence Regulations of 1939. These latter are broad grants of power to the Government by Parliament, and in effect provide that the Government may do almost anything it deems necessary for the defense of the realm and the effective prosecution of the war.

6. The Government cooperates closely with the cold storage industry in the conduct of the cold storage control program. This feature-cooperation with the trade - is a major characteristic of British food control. The cold storage industry is represented by a committee, which has appointed two liaison officers to represent them before the Ministry of Food. Monthly meetings of the liaison officers and Ministry representatives are held, at which various matters of interest to the trade and of importance to the conduct of the program are discussed. This system appears to work very smoothly. Of course, the Ministry and the trade do not see eye to eye all of the time, but under this system of administration difficulties can be overcome and decisions reached.

7. The cold storage control program is integrated with, and is of material benefit in, the operation of programs designed to conserve transport.

8. The Ministry has built and now operates about 50 cold storage warehouses. These warehouses are built to standard design, and the Ministry states that its building program has been of great aid in providing adequate storage.



This paper is intended to set forth in brief form the program developed by the British for the conduct of the storage of products in cold stores during the war, in the hope that the British experience may prove of some value in connection with the development of programs for cold storage control that may in time be necessary in the United States.

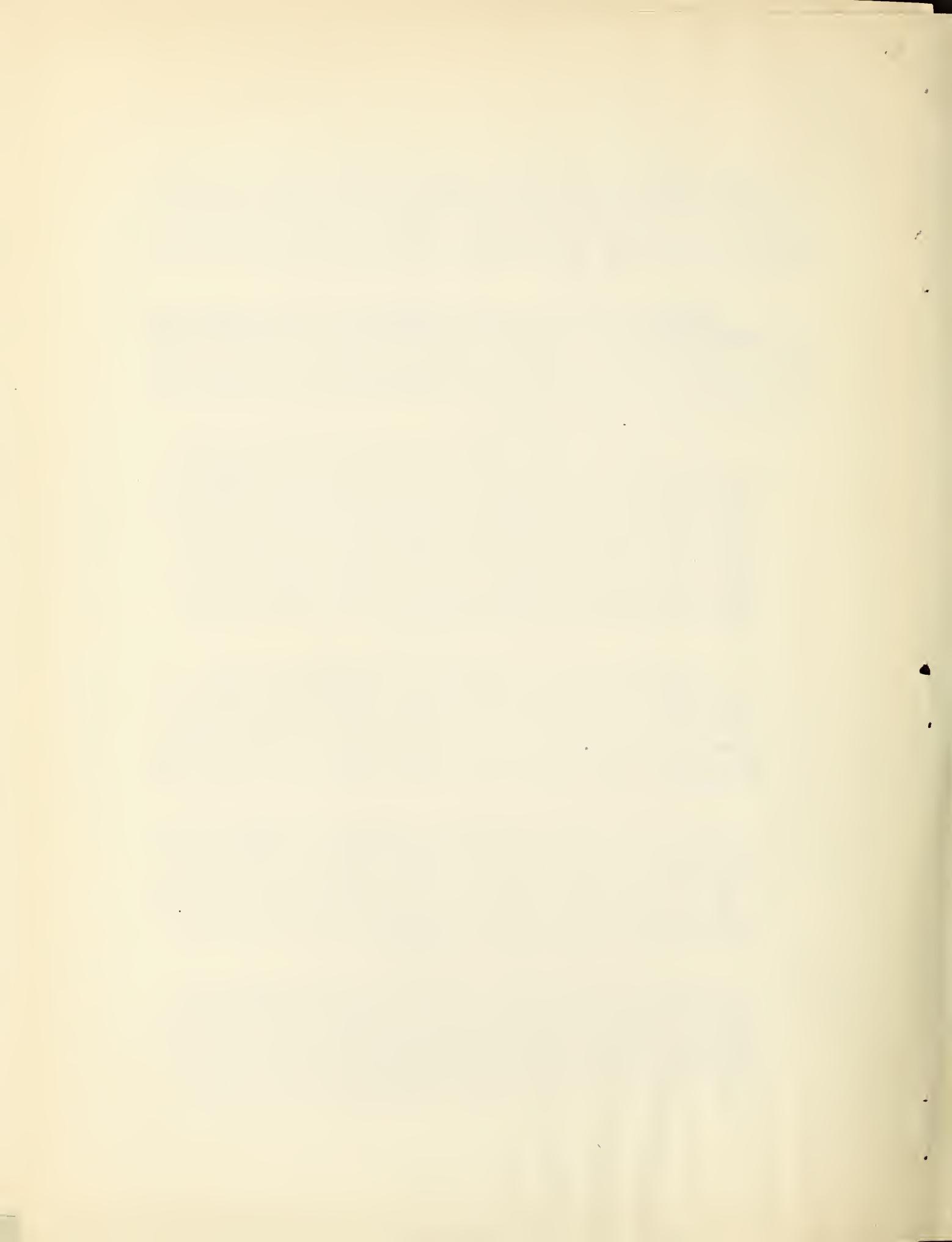
1. Problems of the cold storage industry in the United Kingdom engendered by the war - There is set forth below a brief description of the major additional problems imposed on the cold storage industry of England by the war. Most of the problems devolve around the central problem of maintaining adequate storage and adequate management of storage under siege conditions.

(a) Need for large stocks - In times of peace, cold storage stocks are relatively small in the United Kingdom, but on the outbreak of war, due to the existence of virtually siege conditions, the amount of storage stocks had to be increased. Shipping was heavily burdened by war needs. Many areas which normally would be expected to be the locale of large stocks (the industrial areas and large towns) were in danger of attack by bombing. Transport within the country must needs be used most efficiently, and in times of crisis would be needed for direct war purposes.

In addition to the foregoing, the Ministry of Food, acting upon the basis of experience in food control in the war of 1914 to 1918 and in accordance with "blue-prints" of food control drawn up by the Government prior to the outbreak of war, had decided upon a course of action designed to bring major foods under exceptionally tight control as to prices and consumption.

In view of the several factors outlined, the British accumulated, or planned to accumulate, very large stocks of many food lines, in particular meat, cheese, grains, and the like. Obviously, this would involve not only control of the product as such, but also the development of such efficient use of cold storage as would permit the development of such large stocks and assurance of their proper handling.

(b) Proper diversion of stocks - It was foreseen at the beginning of the war, but more particularly upon the fall of France, that many areas in the United Kingdom might be heavily bombed. Therefore, it was deemed advisable to secure such diversion of stocks from critical danger areas as would ensure their safety as well as could be expected in case of heavy



bombing raids. The disposition of stocks by location is, of course, secret information, but the Ministry of Food has the policy of moving stocks as rapidly as possible from ports of entry to more safe areas in the interior. This policy holds except where the location of processing facilities makes such a policy of diversion inexpedient when considered in relation to the need for conserving transport, and the like. Obviously, such exception does not exercise much influence in the course of stocks entering cold storage which ordinarily do not need much heavy processing.

(c) Stock dispersion as an adjunct of feeding during invasion - Upon the fall of France, the British obviously had to take account of the strong possibility of invasion. It would be very poor policy to have food stocks largely concentrated in areas where invasion might be attempted, or unavailable in case of large scale evacuation from danger areas.

(d) Relation of storage control to transport use - Proper use of transport involving the elimination of considerable cross-hauling and other inefficiencies, is obviously encouraged to some extent by control of warehousing in such fashion that long hauls to and from warehouses can be reduced.

(e) Relation of storage control and food control programs of the Ministry of Food - Before the outbreak of war, very detailed plans had been developed in the United Kingdom, pointed toward very rigid control of food, in particular the major foods such as meat, grains, dairy products, and oils and fats, from both the price and consumer off-take (rationing) viewpoint. While these controls are described in detail in other reports, it suffices to state here that they involve in many cases complete control of a food product from the time of its purchase overseas or at first sale from farms in case of domestically produced food, through every channel of trade or step in processing to ultimate sale to consumer. The British have found, or at least believe, that such controls cannot be expected to work by fiat, hence the Ministry of Food, either itself or through agents acting in its behalf and at its direction, actually handles a number of major foods. In such a closely controlled system of operation, no important feature of processing or handling can be left outside the scheme of control, else private whim, caprice, or mismanagement could operate to the great detriment of a scheme conceived in the public interest. It is probable that this reason alone would have been sufficient to have caused the British to embark upon a broad scheme of cold storage control.



There is set forth below a description of the British war-time cold storage control scheme.

2. Description of war-time control of the cold storage industry in the United Kingdom - Prior to the war, the British had made a fairly complete survey of their cold storage capacity by types, location, size of plant, etc. No attempt has been made to summarize the pre-war regulation of cold storage establishments, since it is felt this would have only academic value. Immediately upon the declaration of war, the British food control scheme was imposed, and has been strengthened at an accelerating pace as the war situation has worsened.

(a) Orders of Ministry of Food bringing cold storage industry under control - On the second day of September, 1939, the Board of Trade issued an order providing for the control of cold storage, as follows:

1. "Cold Store" defined as any cold store where the total refrigerated space was not less than 2,000 cubic feet, clear of cooling pipes, ducts, coils, etc., but not to include any cold store used in or for the purposes of an establishment not carried on for purposes of gain.

2. No person owning or controlling a cold store would deliver or take delivery except under the terms of a license granted by the Board of Trade.

3. Required the keeping of accurate records as to date, ownership and time of delivery or acceptance of delivery, and appropriate account records, vouchers, etc., as required by the Board of Trade, and required access to such records by any representative of the Board of Trade.

4. Provided for the entry and inspection of any premises by a representative of the Board of Trade, either for commodity or premise inspection<sup>1/</sup>. This order (S.R. & O. 1027, 1939) was issued by the Board of Trade prior to the formation of the Ministry of Food.

<sup>1/</sup> Statutory Rules and Orders, 1939, No. 1027. (S.R. & O. No. 1027). Statutory Rules and Orders are documents issued by any Ministry under the Defence Regulations, 1939. The latter gave exceptionally broad powers, under which the Ministry issues the rules and orders. These may be challenged in Parliament, but rarely are serious challenges made.



On January 11, 1941, the Ministry of Food issued S.R. & O. 1941 No. 37, under which more drastic control of the cold storage industry was rapidly effectuated. Briefly, the order directed operators (undertakers) of cold storage houses with not less than 2,000 cubic feet of refrigerated space clear of pipes, etc., to comply with "any such directions of the nature specified in the Schedule to this Order", as given by or on behalf of the Minister of Food. The nature of the directions could cover the following list of subjects:

1. Accurate reports as to storage space.
2. Keeping of books and records as directed.
3. Articles that could be delivered into or out of storage.
4. Temperatures at which cold storage rooms must be maintained.
5. Stowage, separation, or disposal of any article in the cold storage space.
6. Storage rates and charges which could be charged by any cold storage operators and for any services rendered in relation thereto.
7. Employment of persons in the cold storage undertaking. 2/

Under the general powers as to subject matter granted by S.R. & O. No. 37, specific directives have been issued by the Director of Cold Storage, for and on behalf of the Minister of Food. These directives are specific and concise. They cover practically all phases of storage operations, among these being (1) rates that can be charged, (2) rates chargeable for services of one kind or another, (3) directions as to stowage of commodity, (4) methods of computing tonnage, (5) temperatures at which commodities must be held, and (6) operation of a sort of profit "equalization" fund. Only the latter will be discussed in detail herein. Appendix B contains excerpts of directives on different phases of cold storage control.

Sub-section (1) of Section 2 of the Emergency Powers (Defence) Act, 1939, provides that the Treasury may by order provide for imposing and recovering, in connection with any

---

2/ For details of S.R. & O. 1941 No. 37, see Appendix A.



scheme of control contained in or authorized by the Defence Regulations, any charges specified in an order thereunder. In developing their control of rates chargeable by and profits to storage operators, the Ministry of Food developed the scheme and it was given effect by S.R. & O. 1941 No. 268, issued by the Treasury under date of February 28, 1941. Briefly, this order provides guarantee of a certain minimum income and the drawback of a proportion of receipts over gross income, income in both cases being figured in relation to certain specified direct costs and a uniform valuation per cubic foot of storage space. Appendix C gives further details respecting S.R. & O. 1941 No. 268.

The Schedule contained in S.R. & O. 1941 No. 268 was effectuated by the Director of Cold Storage by and on behalf of the Minister of Food. The Schedule contains the following major provisions:

1. Announcement that as of the 1st of February the Ministry of Food would fix cold storage rates. These rates were to apply for a minimum period of six months, after which they would be reviewed in the light of experience gained in operating the scheme.
2. The control scheme applies to cold stores of 2,000 feet or over, capable of maintaining frozen meat, butter and bacon at temperatures efficiently maintainable at from 14° F. to 16° F. for meat and butter, or 16° F. to 18° F. for bacon, and the space is calculated only below a height of 12 feet from the floor.
3. The Ministry guarantees a minimum revenue to all cold stores brought under the scheme. In this connection it is to be noted that the Ministry felt that it could not allow any cold storage warehouses suitable for its purposes to discontinue operations. In an extreme case a warehouse might be empty, yet for strategic or other reasons the Ministry might deem it advisable to keep it in operating condition, in which case they would do so by the guarantee of a minimum revenue above direct costs. The guaranteed minimum is an amount equal to the direct costs of operating the cold storage space plus 2d. per cubic foot of controlled storage space per annum.
4. The Ministry also fixed the maximum revenue, or rather the means of determining the maximum revenue, which cold storage operators could secure. The maximum revenue fixed by the Ministry amounts to the direct costs of operation plus 6d. per cubic foot of controlled storage space per annum.

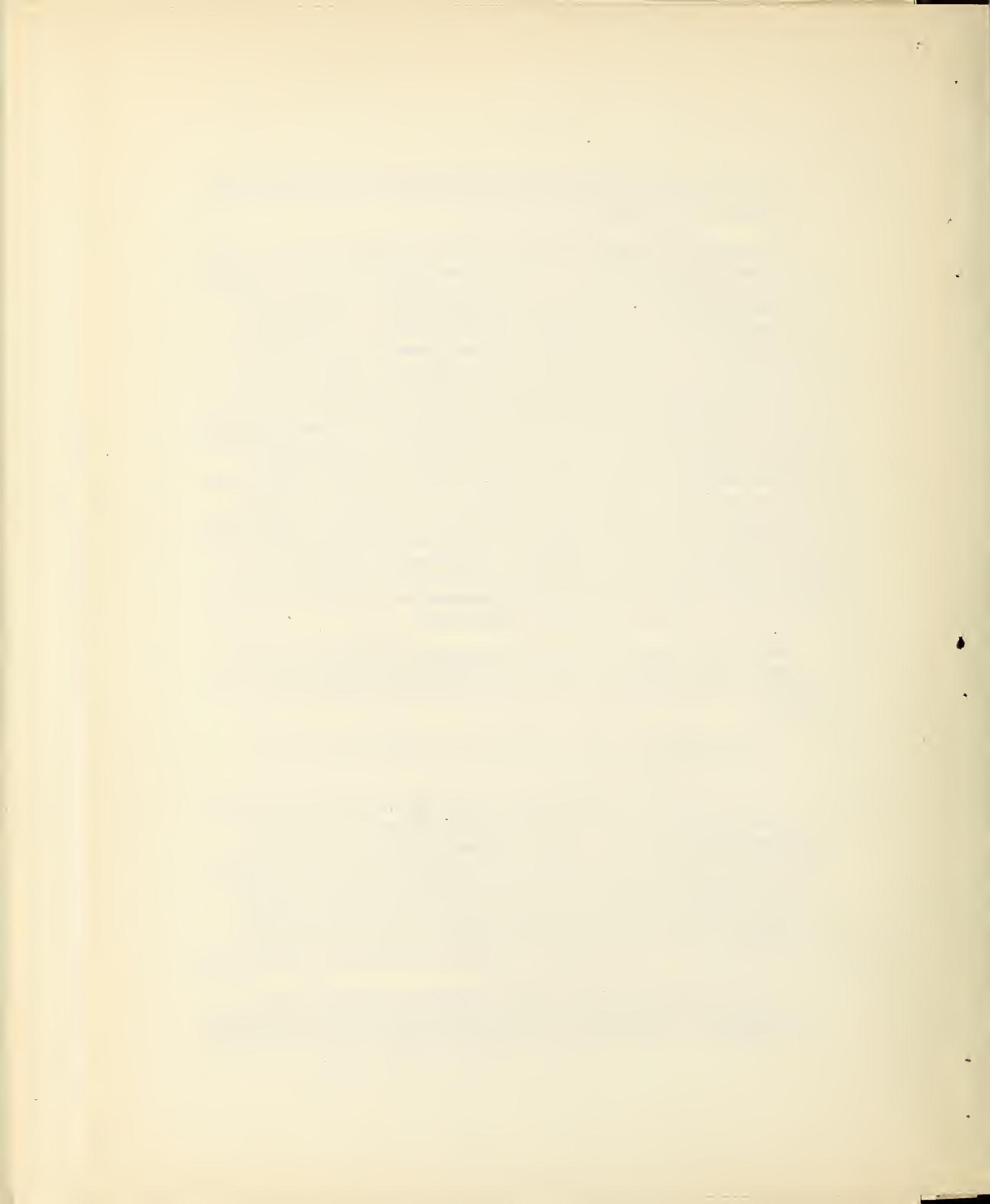


5. The items of cost which are to be used in ascertaining direct costs are specified in the directive. These are given in detail in Appendix C.

The directive described above, which was issued March 7, 1941, was amended by directive No. X.C.3.58 issued May 9, 1941. The major amendments resulted in there being excluded from the sums allowed in direct costs net income taxes and ground rent. In place of ground rent, each operator was allowed to include in direct costs an amount equal to 3d. per cubic foot per annum of controlled storage space. In addition, any gross revenue in excess of 6d. per cubic foot per annum was to be paid into the Ministry of Food, and this was amended so that the cold storage operator secured a rebate from the Ministry of Food of 25 percent of any excess revenue above 6d. per cubic foot per annum. The Ministry also guaranteed that any losses incurred in operation of this minimum-maximum guarantee would be made up by a charge on the Treasury. The amendments also provided that a new Schedule of cold storage charges would issue, and the depreciable value of cold storage property was fixed at the rate of 2s.6d. per cubic foot of controlled storage space, of which 1s.0d. per cubic foot represented refrigerated machinery and 1s.6d. per cubic foot represented insulation, electric plant, and the like. The rates of depreciation allowed are 12 percent and 9 percent per annum respectively.

Since the issuance of the two directives noted above, there have been other changes, but it is inappropriate to deal with them in detail in this report. The position can be summarized as follows:-

1. The Ministry of Food controls all cold storage space of 2,000 cubic feet or over.
2. It fixes the rates which it will pay for all items stored for Ministry account and exercises supervision of the rates charged private stores. If it desires, it can fix the rates which warehousemen may charge other persons using their premises but, in practice, it has not done so. This is a rather small matter inasmuch as most of the food in cold storage warehouses is under the control and, in many cases, the ownership of the Ministry of Food. Furthermore, for foods that are controlled but not owned, a rigid system of prices and margins is established.
3. The Ministry of Food issues complete instructions as to the storage of commodities. These instructions cover the stowage of commodity, temperature at which commodities are to be stored,



rates payable by the Ministry for all services ancillary to storage, and the like.

4. The Ministry guarantees a minimum income and enforces a scheme to control maximum income.

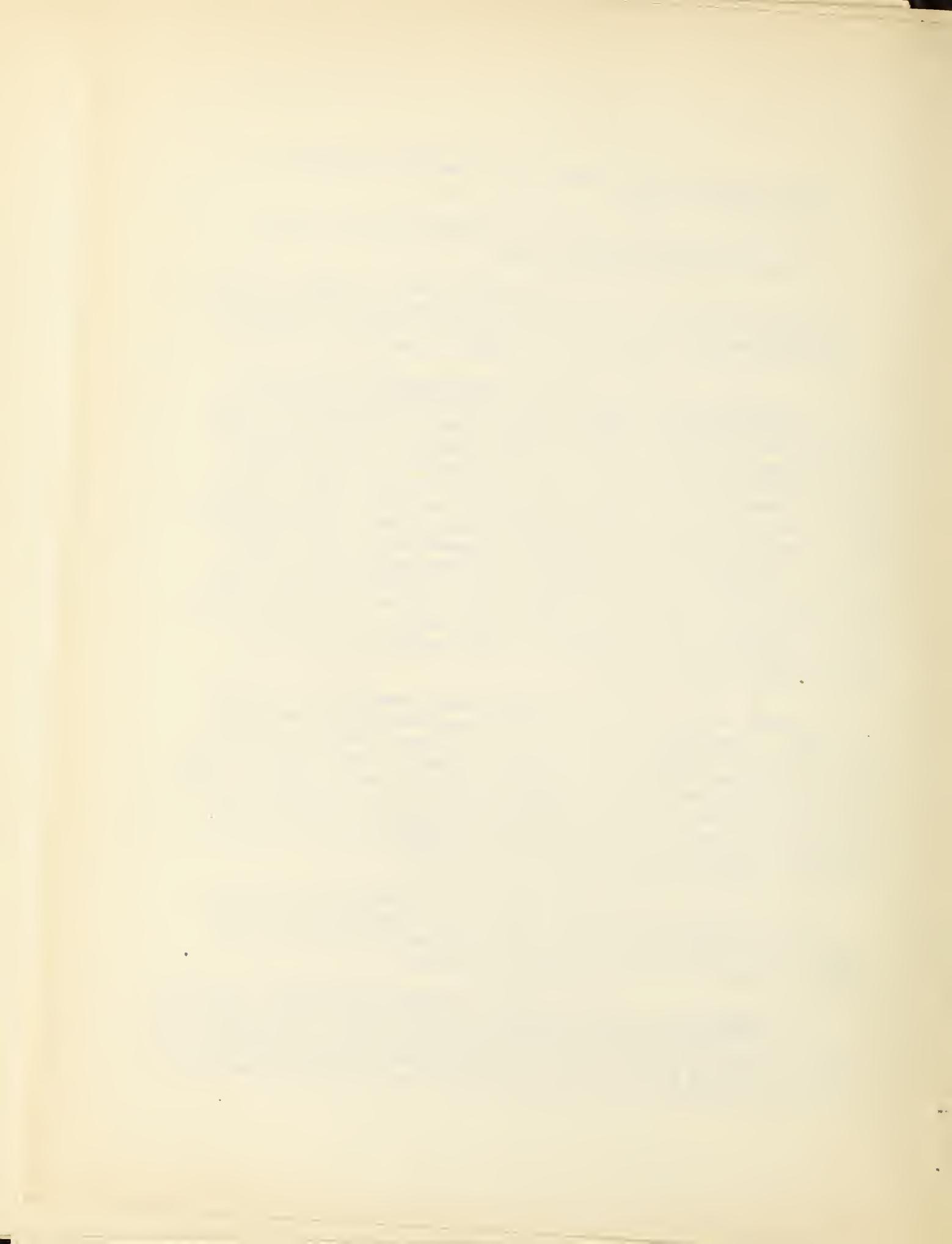
From the foregoing it is quite evident that the control of the Ministry of Food over cold storage warehouses is complete. For all practical purposes the Ministry, through its system of controls, is in much the same position as if it owned the warehouses outright.

3. Cold storage building program of the Ministry of Food - In addition to the stringent control of private cold storage warehouses summarized in the preceding pages of this report, the Ministry of Food has undertaken a building program of some magnitude. Approximately 50 new cold storage warehouses have been built by the Ministry of Food, and are located in areas selected by the Ministry, due account being taken of such factors as strategic elements, transport, labor, and the like. There is set forth in Appendix E standard general specifications for the construction of cold storage warehouses built by the Ministry of Food. In general, the buildings are constructed of brick, with steel frames, and have three floors. Loading platforms to take loads from railway cars are placed on each side of the cold storage building, and each platform will accommodate 7 railway cars. At the ends of the building there are side platforms for motor vehicles, each platform accommodating 3 road vehicles.

The total net capacity of the warehouses averages about 250,000 cubic feet. The Ministry indicates that they have had success with their storage buildings and that they have proved valuable in handling the cold storage problem in the country. They had some difficulties in securing permission to use critical materials, such as steel, in the construction of cold storage warehouses but in this connection it is to be noted that they have eliminated as much steel in construction as possible, and furthermore other building materials, such as wood, are even more critical and practically unobtainable.

The cold storage warehouses owned by the Ministry of Food are operated on a direct cost basis. The costs of operation were not secured, but in all probability these are reasonable relative to the charges allowed private cold storage operators.

4. Description of flow of product through cold stores - The previous sections of this report have indicated some details as to the manner in which the cold storage program of the Ministry of Food is administered. Briefly, the cold storage program is administered by the Director of the Cold Storage Division of the Divisional and Local Services Department.



The cold storage industry is represented by a committee, but the committee itself very rarely meets with Ministry representatives as a body. The committee has appointed two liaison officers who hold monthly meetings with the Director and Deputy Director of the Cold Storage Division, together with such technical personnel as the Division brings into the meeting. These committee meetings are working meetings. A carefully drawn up agenda is rigidly adhered to and excellent minutes are kept. Throughout the list of minutes, which were given to us for study, and permeating practically all of the directives issued by the Director of the Cold Storage Division are references to the representations made by the industry through their liaison officers and the position of the Ministry with respect thereto. Judging on the basis of a rough correlation of minutes with directives issued thereafter, it appears that this method of working with the industry has resulted in very smooth operations. They have, of course, had some very difficult arguments, but these have usually been resolved without a great deal of clamor being raised.

Obviously, the operations of the Cold Storage Division impinge upon and are affected by the operation of the numerous commodity divisions of the Supply Department of the Ministry of Food. There is a great deal of coordination required between the operation of the various commodity divisions and the Cold Storage Division, and this takes place at the Divisional level at the Central Offices of the Ministry of Food. The Ministry of Food, however, has divided the country into a number of regions and the Area or Regional Officers are in control of all food problems within their area. Their staffs in many cases consist of commodity specialists and the like. The manner in which food flows through the ports and into warehouses is given below in order to indicate the close relationship between commodity divisions and the Cold Storage Division. Meat will be taken as an example.

Meat is received through the Port Meat (Bacon or Meat, as the case may be) Officer or Officers who receive directions from the Ministry of Food as to its disposition throughout the country. The Ministry of Food advises the Area Officer that a given quantity of meat is to be stored in his area and he is advised as to the details of the shipment. In this connection it is to be noted that the Ministry of Food requires a daily report of empty storage space, and thus has available every day a complete list of space in each area. The Area Food Officer has in practically all cases two assistants called Assistant Divisional Food Officers (A.D.F.O.), one of these being in charge of transport and the other of warehousing. The two A.D.F.O. affected by the movement of the meat then direct storage operators as to the arrival of the meat and where it is to be stored, etc. From all that could be observed of these operations, it appears that the actual movement of meat from ports to inland points and its subsequent storage is handled very smoothly. This is made possible by the extremely close control and knowledge of cold storage space available, together with knowledge of the volume of meat



needed in any particular area as a result of the various control devices for meat, particularly rationing, and the like.

The foregoing facts and information are sufficient to describe the workings of the British cold storage system for the purposes of this report. Appraisal of the effects of control upon rates of return in the cold storage industry and the efficiency of operation of the industry is outside the scope of this report. The documents through which control is exercised in and of themselves are so numerous that it would be a major research task of some months to follow the history through. Indications are that by and large the cold storage industry has fared fairly well under the rigid control scheme. Whether the operators have been remunerated at higher levels than would have been necessary has not been ascertained. From the practical point of view it makes little difference. Excess profits taxes are practically 100 percent and, of course, income taxes are extremely high compared to the levels prevailing in the States. The major animus in the control of storage has been to get the food properly cared for first, and to consider elements of cost second. In a country where the loss of a few thousand tons of meat is a serious blow, the reasons for the priority in operations becomes obvious. On the other side of the picture, there can be no doubt that many small cold storage warehouses would have gone out of business and perhaps have represented complete capital losses, if it were not for the Ministry of Food's program. Thus, while some storage operators may be making a good thing, a lot of them would have been lost without the program. A complete appraisal of the whole situation would also embody consideration of the savings in transport engendered by complete regulation and management of cold storage. Transport has been reduced very greatly and there is very little cross-hauling except that absolutely necessary. The factors of saving in transport, the necessity for having storage space of all kinds available throughout the country, the effect of management of cold stores upon the rest of the food management programs, such as rationing, price control and the like, preclude generalizations as to the effect of the program upon the cold storage industry. For the purposes of conducting the war, there can be no doubt but that the cold storage program has achieved its goals.



APPENDIX A

Excerpts from S.R. & O. 1941 No. 37 - The Cold Storage  
(Control of Undertakings) Order, 1941.  
Dated January 11, 1941.

There is set forth below a series of excerpts from S.R. & O. 1941 No. 37.

1. Definitions:

- (a) "The Minister" means the Minister of Food.
- (b) "Cold Storage Undertaking" means any undertaking consisting wholly or in part of a cold store in respect of which the person owning or having possession or control thereof is the holder of a license granted to him under the provisions of the Cold Storage (Restriction) Order, 1939.
- (c) "Cold Store" means any cold store where the total refrigerated space is not less than 2,000 cubic feet, clear of cooling pipes, ducts, coils or other apparatus, but shall not include a cold store exclusively used in or for the purposes of an establishment not carried on for the purposes of gain.
- (d) "Net Storage Space" means space in cold chambers measured clear of the machinery of freezing - such as insulation, air coolers, cooling pipes, etc.
- (e) "Undertaker" means any person owning or controlling a cold storage undertaking.

2. "In carrying on his cold storage undertaking every undertaker shall comply with any such directions of the nature specified in the Schedule to this Order as may at any time be given to him by or on behalf of the Minister."

The Schedule

Directions

- 1. "As to the furnishing by any undertaker at such time or times as may be specified in the direction of an accurate return setting out the net storage space of his cold storage undertaking, and of any remaining cold storage space of such undertaking."



2. "As to the books, accounts and records which any undertaker shall keep and as to any other information which shall be furnished by him in relation to his cold storage undertaking".

3. "As to what articles may be delivered into or delivered out of his cold storage undertaking .... and as to the time or times when either such delivery shall be made."

4. "As to the temperature or temperatures which any undertaker shall maintain in his cold storage undertaking or in any part or parts thereof."

5. "As to the stowage, separation or disposal of any article or articles by any undertaker in his cold storage undertaking."

6. "As to the storage rates and charges which may be charged by any undertaker ... ... ... and for any services rendered in relation thereto."

7. "As to the employment of persons in his cold storage undertaking."

#### APPENDIX B

##### Excerpts from Directions Given Under the Cold Storage (Control of Undertakings) Order 1941 and the Cold Storage (Control of Undertakings) (Charges) No. 2 Order, 1941.

The excerpts from S.R. & O. 1941 No. 37 given in Appendix A show the general nature of the S.R. & O. (see The Schedule). The excerpts given below show how the S.R. & O. is implemented by Directions issued under the authority granted in the S.R. & O., and also show some of the detail of regulation in order to indicate its scope and content.

"Pursuant to the provisions of the above Orders the Minister hereby directs that .....

(1) You shall within 28 days from and after the first day of February, 1941, furnish to the Minister in the form set out in the Second Schedule hereto, a return of 'net storage space' and other cold storage space."



(2) "You shall .... keep the following books, accounts, and records:

(a) A log book of temperatures for each chamber.

(b) A complete stock book in detail showing the date of receipt, where stowed and date of delivery of all produce received into your 'net storage space'.

(c) Such books and records as are sufficient to show the 'gross revenue' and 'direct costs' ...."

(3) "You shall .... furnish the Area Cold Storage Officer of the Ministry of Food in your area a daily return of your empty 'net storage space'".

(4) Only those items may be delivered into or out of storage as may be specified by the Minister.

(5) The rates and charges shall be those set out in the Third Schedule.

To the Directive that is paraphrased above there were attached three Schedules. The First Schedule is a table in blank, to be filled in by the operator, and showing the Code No. of the operator, his name and address, and his License No. The Second Schedule is a form for making a return to the Ministry of Food showing net storage space, and particulars thereof, i.e. floor, "net storage space" calculated pursuant to instructions, type of cooling, whether by cold air, direct expansion grids, or brine grids, minimum safe working temperature, and type of produce for which the space is suitable.

The Third Schedule indicates the rates and charges permissible under the order, and is set forth below:

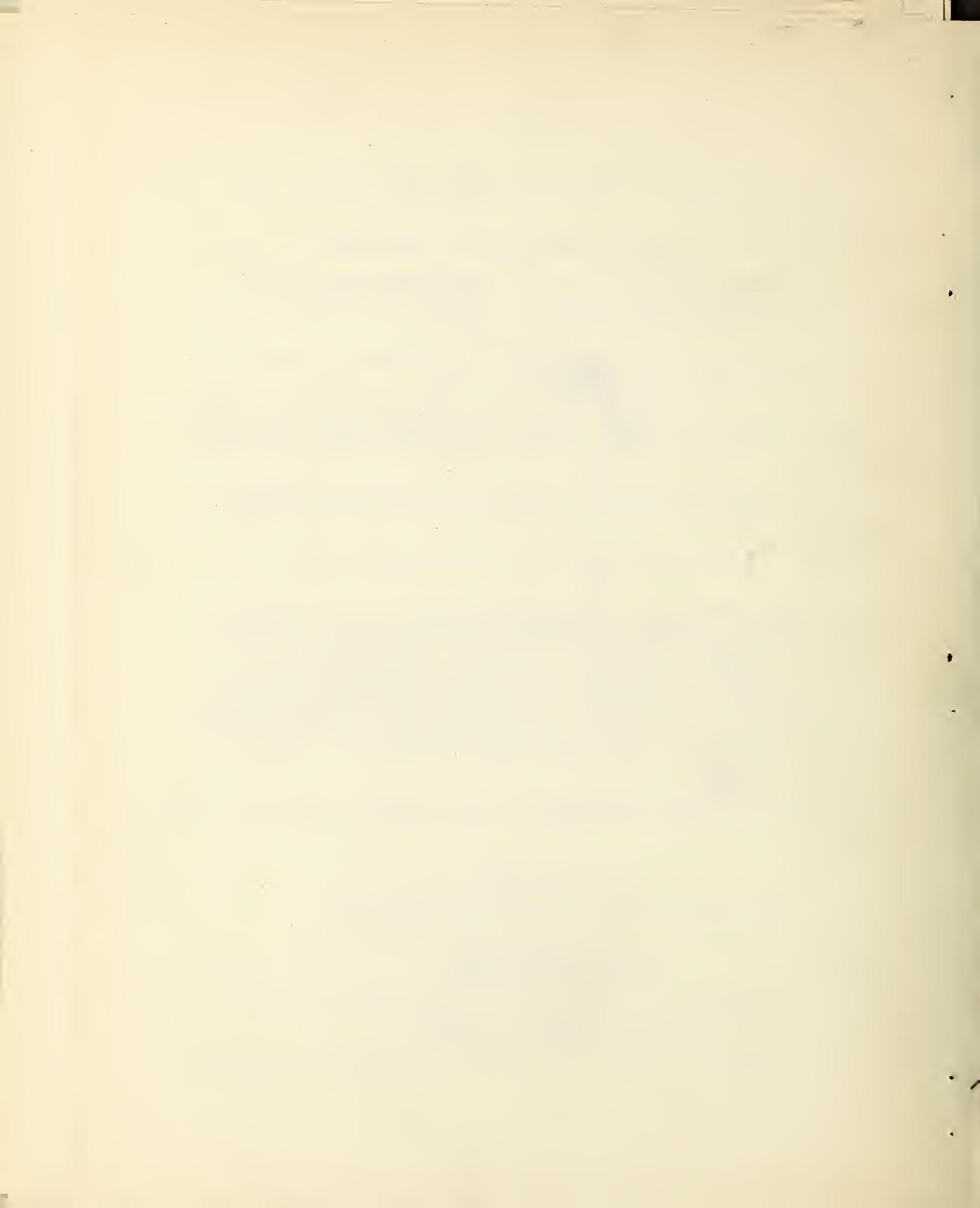
MINISTRY OF FOOD

COLD STORAGE (CONTROL OF UNDERTAKINGS) ORDER 1941

COLD STORAGE CHARGES  
THE THIRD SCHEDULE PART I.

GT. BRITAIN (Except London Metropolitan Police  
Area and City Police Districts)

Receiving from conveyance, storing and delivery to conveyance.



Meat and offal Temp. 14/16 deg. Fah.

	s.	d.
Handling charge	16.	0. per ton
Rent, per ton, per week	4.	6.

To include the hardening of any meats or offal  
that have become soft in transit.

Butter. Temp. 14/16 deg. Fah.

	s.	d.
Handling charge	10.	0. per ton
Unrefrigerated Irish or Home produced butter	5.	6. " " in addition
.....		
Rent, per ton, per week	3.	6.

Bacon and Hams. Temp. 16/18 deg. Fah.

	s.	d.
Handling charge	14.	0. per ton
Unrefrigerated Bacon and Hams	5.	6. " " in addition
.....		
Rent, per ton, per week	6.	0.

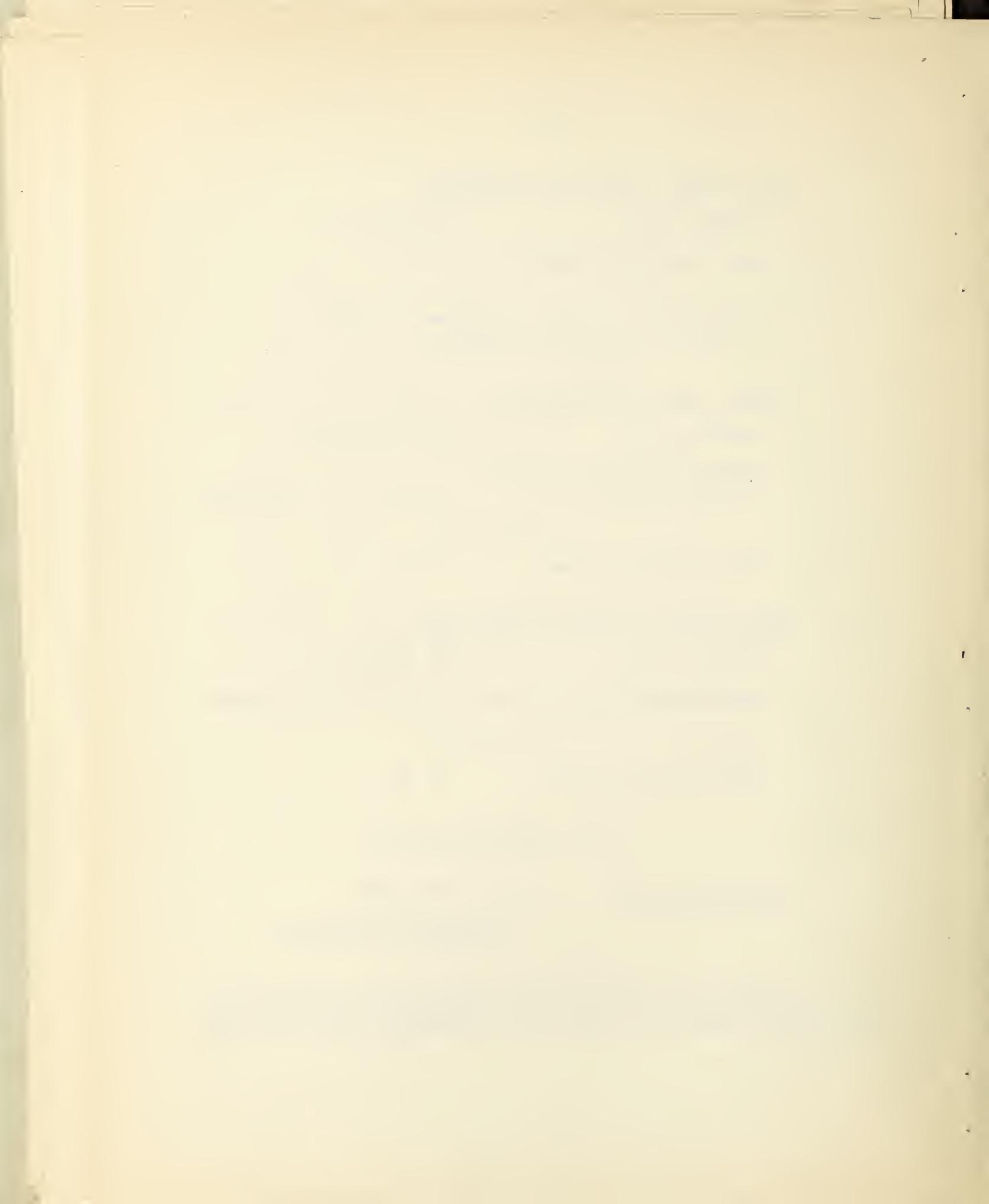
Gross weights in all cases.

1st February, 1941.

(Sgd.) E.F. FARROW

DIRECTOR OF COLD STORAGE

In addition to the foregoing, Part IV of the Third Schedule sets forth the maximum rates permissible for certain functions, such as opening boxes for inspection, weighing net for average, sorting to mark and repiling, etc.



In connection with the matter of weight or tonnage on which the rates are to be calculated for purposes of developing gross charges to the Ministry, each type and cut of meat is given a certain conversion factor per ton. Also, in the case of goods with a marked net weight, gross tonnage is calculated by taking the marked net weight and adding a specified percentage for tare. The question as to proper allowance for tare has caused some rousing arguments between the Ministry of Food and cold storage operators.

APPENDIX C

Excerpts from S.R. & O. 1941 No. 268, The Cold Storage  
(Control of Undertakings) (Charges) (No. 2)  
Order, 1941.

1. Definitions:

(a) The expression "controlled storage space" in relation to any cold store means cold storage warehouses with a net storage space, exclusive of pipes and other installations, of not more than 2,000 cubic feet.

(b) The expression "accounting period" means the period from the 1st day of March 1941 and including the 25th day of April 1941, the period thereafter up to the last Friday in the next following calendar month and each subsequent period ending with the last Friday of each calendar month.

(c) The expression "gross revenue" in relation to any controlled space means the aggregate of handling charges, rents, and all other revenue received from goods stored in the storage warehouses whether or not they are under the control of the Minister of Food.

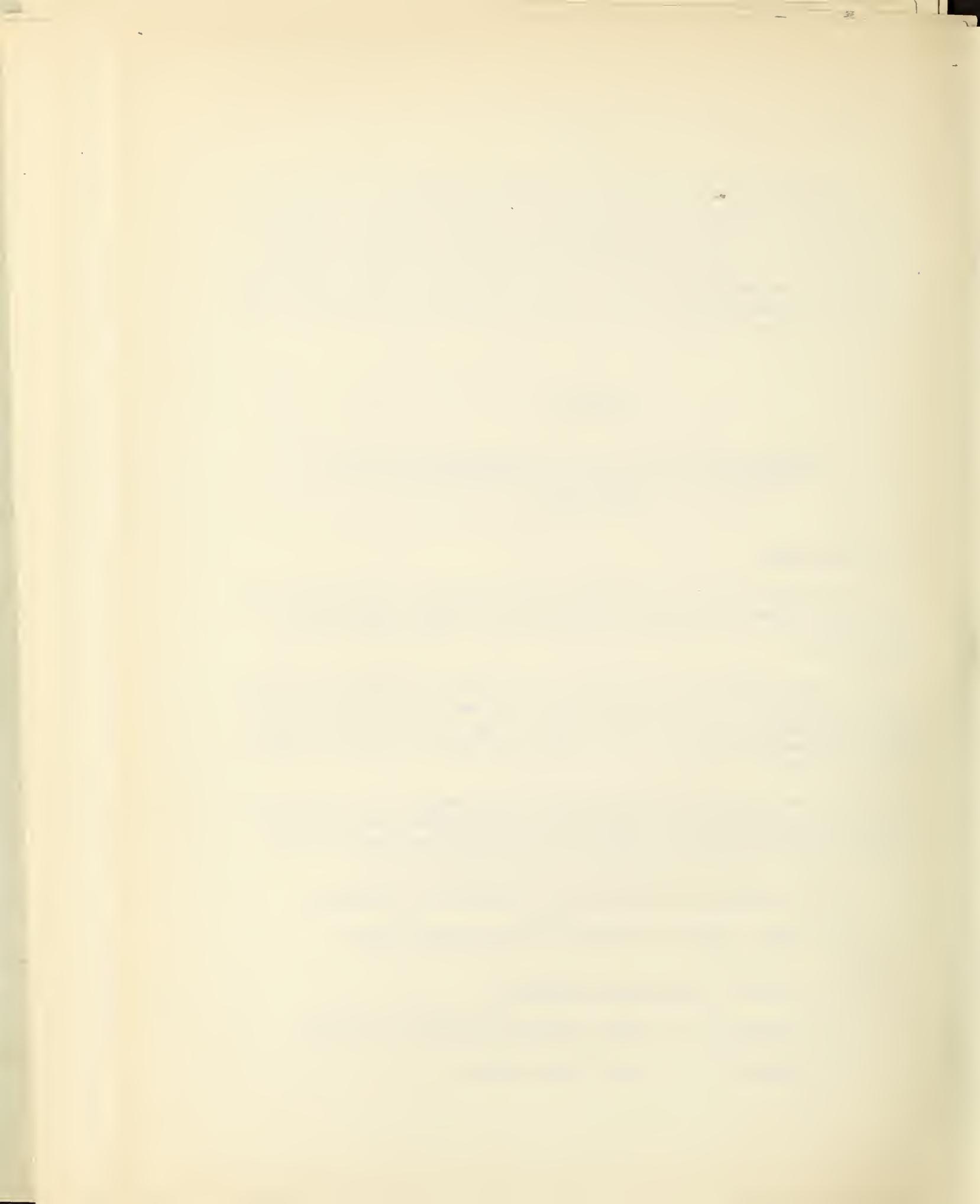
(d) The expression "direct costs" includes the following:-

(1) Wages, including National Health and Unemployment Insurance,

(2) power and refrigeration expenses,

(3) maintenance and running repairs (exclusive of renewals),

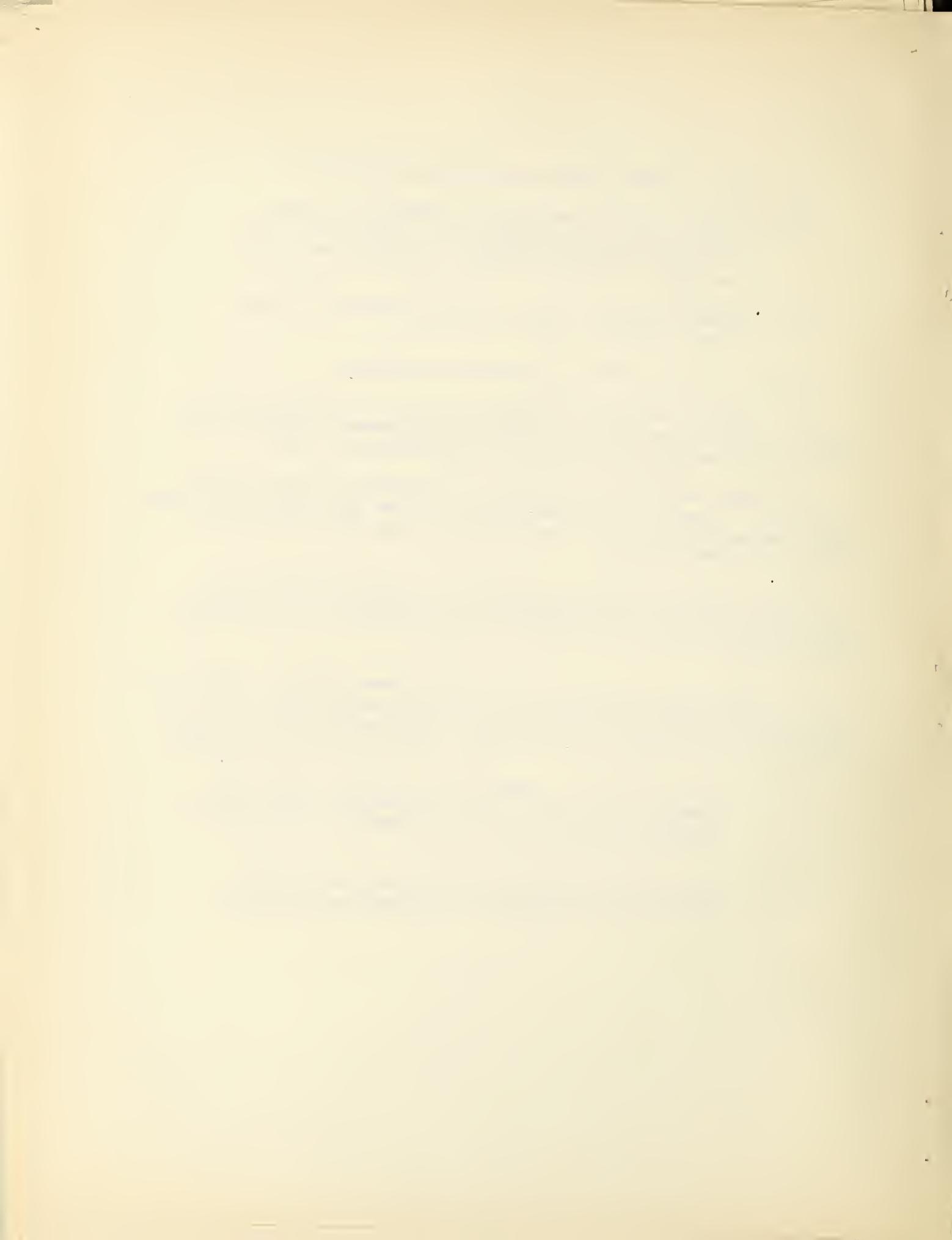
(4) depreciation at Inland Revenue rates,



- (5) rates, - meaning local tax rates and income taxes,
- (6) 3d. per cubic foot per annum of controlled storage space - this is an allowance for ground rent or, in the case of freehold property, the annual value of the site,
- (7) any other expenses approved by the Minister as being direct costs.

S.R. & O. 1941 No. 268 also provides as follows:

- (1) For the furnishing of reports in the form required by the Minister, which reports are to show the gross revenue accruing to the cold storage operator and the direct costs incurred by him.
- (2) Each undertaker is required to pay to the Minister of Food the excess, if any, of the gross revenue over the aggregate direct costs and a sum calculated at the rate of 6d. per cubic foot per annum of controlled storage space.
- (3) In case of disputes, the dispute is to be referred to an accountant appointed by the President of the Institute of Chartered Accountants of England and Wales, and the decision of such accountant shall be final.
- (4) All money received by the Minister under S.R. & O. 1941 No. 268 is to be paid into the Ministry of Food Cold Storage Account. The Minister is to use such money in giving effect to the Schedule attached to and made a part of S.R. & O. No. 268. The Schedule is as follows:
  - (a) To provide that each undertaker in respect of the cold storage space of each of his cold stores shall receive a minimum revenue to be agreed between the Treasury and the Minister, and,
  - (b) Subject to the foregoing paragraph, for such further purpose as the Treasury and the Ministry may approve.



APPENDIX D

X/CS/58.

MINISTRY OF FOOD

Imperial Hotel,  
Colwyn Bay,  
North Wales.

16th January, 1941.

Sir,

I am directed by the Minister of Food to enclose for your information a memorandum explaining the financial arrangements relating to the extended Scheme of Control for Cold Stores which will come into operation on 1st February, 1941.

I am to request that you will be good enough to study this memorandum carefully and to consider what arrangements you should make to enable the necessary accounts and returns to be furnished to the Ministry in due course.

During the next fortnight further explanations and directions will be sent to you dealing with the technical and other arrangements necessary to ensure the effective operation of the Scheme.

The Ministry has invited representatives of the Cold Storage Industry to appoint a small Committee to discuss with it the details of the scheme and to assist with its financial operation in the early stages.

I am to say that the Minister of Food is satisfied that the Scheme is necessary in the national interest and that it will be in the general interest of the Cold Storage Industry. He is confident that cold store owners will co-operate with the Ministry to ensure its smooth working.

I am, Sir,  
Your obedient Servant,

A. E. FEAVEARYEAR.



MINISTRY OF FOOD

X/CS/58

CONTROL OF COLD STORES. *1/*

Orders extending the Ministry's control over cold storage accommodation have now been made, namely:-

The Cold Storage (Control of Undertakings) Order, 1941,  
dated 11th January, 1941.

The Cold Storage (Control of Undertakings) (Charges) Order,  
1941 dated 13th January, 1941.

Details of the financial and accounting arrangements which the Ministry proposes to make under these Orders are set out below.

Finance of the Scheme.

(1) The Ministry will fix new schedules of Cold Storage rates for produce owned by the Ministry to come into operation on 1st February, 1941. The rates will apply for a minimum period of six months, after which they will be reviewed in the light of experience gained in operating the scheme.

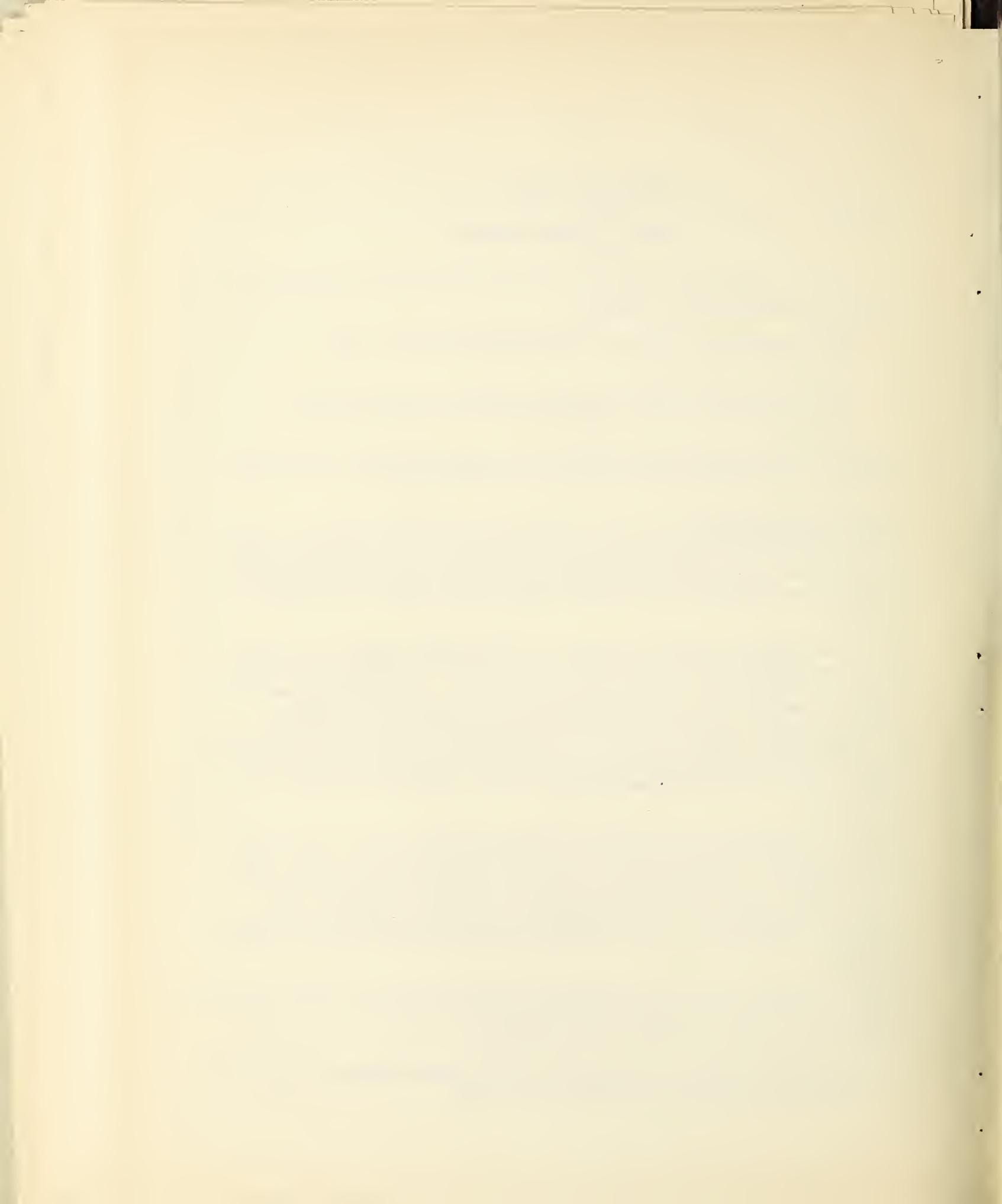
(2) The Control Scheme will apply to cold storage space of a certain character rather than to cold stores generally. The cold storage space to be controlled will be the net storage space in cold chambers measured clear of insulation, cooling pipes, grids, air ducts, air coolers, columns, beams, supports and the like, suitable for the safe storage of frozen meat, butter and bacon at temperatures efficiently maintainable of 14° to 16° Fahrenhsit for meat and butter or 16° to 18° Fahr. for bacon, such space to be reckoned only below a height of 12 feet from the floor.

(3) The Ministry will guarantee a minimum revenue to all cold stores brought into the Scheme so that, to take an extreme case, a store which, for strategic or other reasons, is empty but which it is desirable in the National interest to keep available for use when required, will receive sufficient income to meet standing charges, care and maintenance expenses, depreciation, and a limited amount of administrative overhead expenses.

(4) The Ministry will fix a maximum revenue for the cold stores concerned subject to the participation of the owner of the store in any revenue earned by the store in excess of the maximum.

---

*1/* As originally issued - these directives have been amended to some extent but the essential content is the same.



(5) The guaranteed minimum revenue will consist of an amount equivalent to the direct costs of operating the controlled storage space plus an amount representing 2d. per cubic foot of controlled storage space per annum.

(6) The maximum revenue will consist of an amount equivalent to (a) the direct costs of operating the controlled storage space plus (b) an amount representing 6d. per cubic foot of controlled storage space per annum. In addition to this, the owner of the store will be allowed 10% of any excess earned by the store over and above the sum total of (a) and (b).

(7) The expression, "Direct Costs", is defined as the aggregate of the following expenses incurred in connection with controlled storage space:

- (i) Wages, including National Health and Unemployment Insurance;
- (ii) Power and refrigeration expenses;
- (iii) Maintenance and running repairs (exclusive of renewals);
- (iv) Depreciation at the rates of wear and tear allowed by the Inland Revenue.
- (v) Local rates and the net amount of Income Tax payable under Schedule A.
- (vi) Ground rent or in the case of freehold property the annual value of the site.
- (vii) Any other expenses directly incurred in connection with the operation of controlled storage spaces.

As regards items (iii) and (iv) Inland Revenue practice in assessing to Schedule D of the Income Tax will be followed. Anything in the nature of alterations, improvements, and renewals will be excluded from (iii) and depreciation in (iv) will apply to Plant, Machinery, Insulation etc. but not to Buildings. It is proposed that the depreciable value of plant, machinery, insulation etc. should be fixed as a percentage of the capital cost of the store taken at 5/- per cubic foot, representing the cost of building and equipping a cold store in the years prior to the war, exclusive of the site value. The basis for determining such percentage and for allocating it as between the various kinds of equipment remains to be discussed with representatives of the cold storage industry.

Fuller information regarding the allowance in lieu of ground rent, (Item VI) will be furnished as soon as possible.



As the remuneration of the capital invested in the controlled storage space will be covered by the cubic capacity allowances, interest on borrowed capital, or the rent paid by the tenant of a cold store other than ground rent, will not be accepted as a direct cost under the scheme. Directors' fees and administrative overheads will also be regarded as covered by the cubic capacity allowances and will not be allowed as a direct cost.

Where waterside cold stores possess plant and equipment on the wharf for handling goods from barge or ship to store, the quayside plant, cranes and other appliances, will not be included in any part of the control scheme and their income and expenses will consequently be excluded.

In composite businesses (i.e. undertakings operating cold stores in conjunction with other activities, e.g. ice-making) an apportionment of the expenses of that part of the organisation which provides a service which is common to the cold store and to other departments will be made and the part proper to the controlled storage space will be admitted as a Direct Cost, provided that such an apportioned amount of common expenses would necessarily be incurred directly by the cold store if the common service were not provided, and also the common expenses so apportioned do not partake of the nature of excluded overheads, such as interest upon borrowed capital, directors' fees, or administrative overheads. Apportionments of admissible cold store direct costs will also be made as between controlled storage space and space not under control (e.g. chilled space).

#### EXAMPLES.

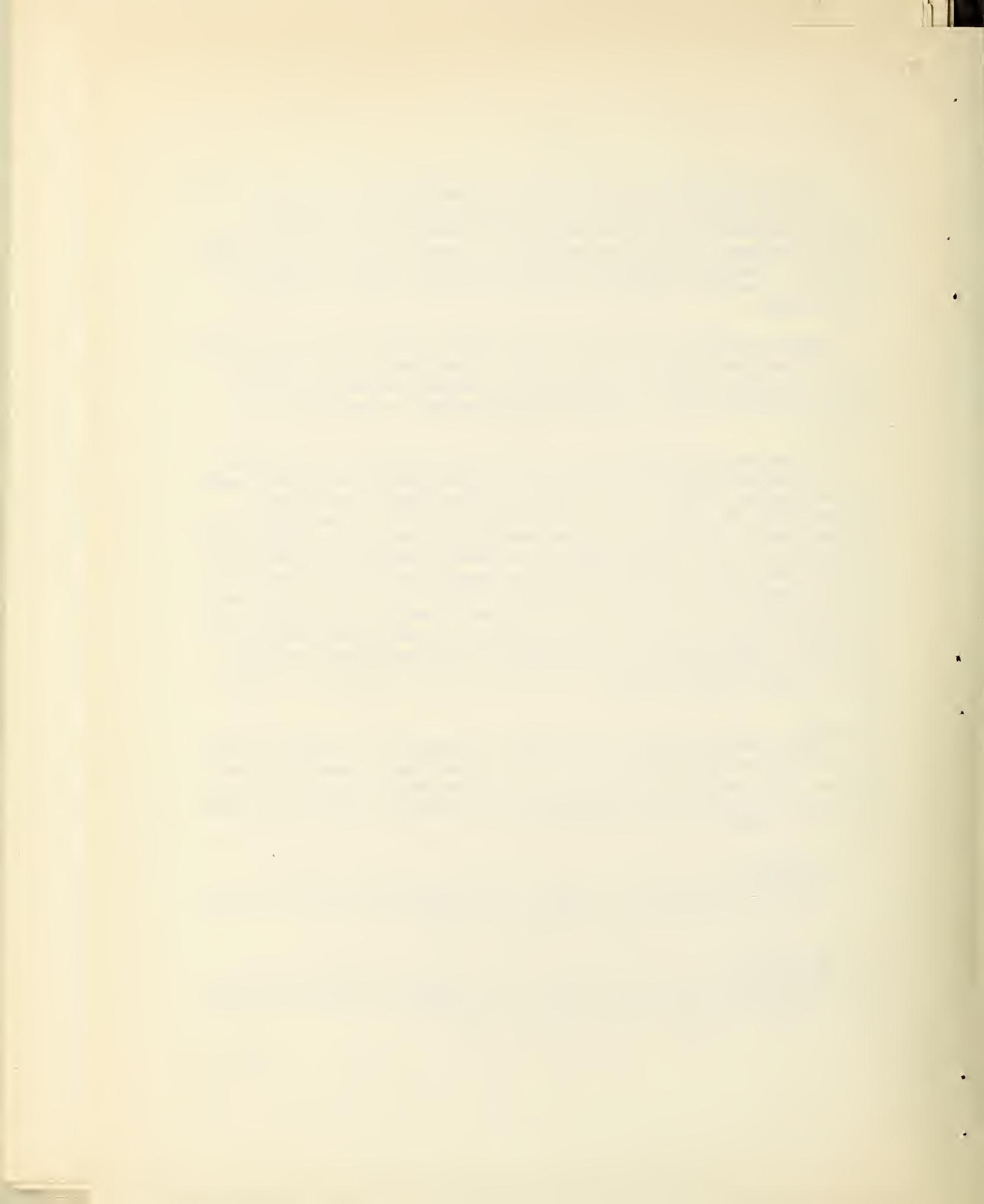
The following examples illustrate the finance of the Scheme in the case of a store with 250,000 cubic feet of net storage capacity. The maximum cubic capacity allowance per annum for such a store at 6d. per cubic foot is £6,250 and the minimum cubic capacity allowance per annum at 2d. per cubic foot is £2,083. 6. 8.

#### EXAMPLE I.

The Store shows during the year a deficit on direct costs of £2,000. The Ministry will make up the deficit and allow in addition 2d. per cubic foot on net storage capacity.

#### EXAMPLE II.

The store shows a surplus for the year on direct costs of £1,000. The Ministry will allow £1,083. 6. 8. to make up the minimum cubic capacity allowance of 2d. per cubic foot.



EXAMPLE III.

The store shows a surplus for the year on direct costs of £5,000. As this surplus is greater than the minimum cubic capacity allowance but less than the maximum cubic capacity allowance, the owner will retain the £5,000 and receive no addition from the Ministry.

EXAMPLE IV.

The store shows a surplus for the year on direct costs of £30,000. The owner will receive the maximum cubic capacity allowance plus 10 per cent of the excess revenue, that is £6,250 + £2,375 = £8,625.

(8) The gross revenue of controlled storage space will comprise the handling charges, storage rent and all other revenue in respect of goods dealt with for the account of the Ministry or otherwise than for account of the Ministry, as from 1st February, 1941, inclusive.

(9) The Ministry will in respect of each accounting period issue to the owner of every controlled store a certificate of the excess, if any, of the gross revenue over the direct costs plus 2d. per cubic foot per annum of controlled storage space, and within fourteen days following the issue of such certificate the owner will be required to pay the excess to the Ministry.

(10) In the event of the gross revenue for any accounting period disclosing a deficit as compared with the direct costs plus 2d. per cubic foot per annum of controlled storage space, the Ministry will pay such deficit to the owner within fourteen days of the issue of the certificate.

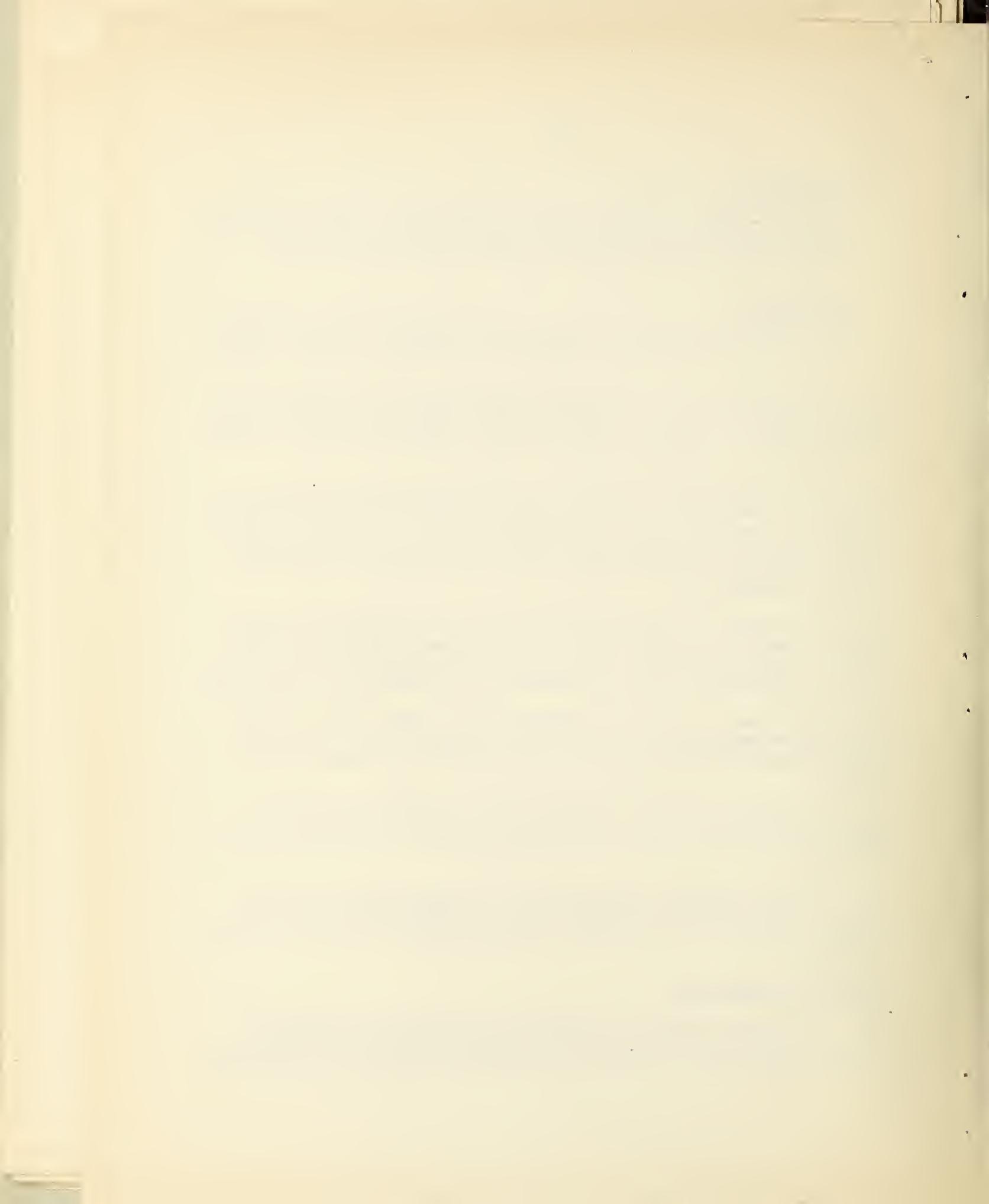
(11) In the case of composite undertakings the excess revenue of the controlled storage space is subject to the charge referred to in (10) above irrespective of any loss or profit of other departments of the business.

(12) The Ministry will make the first final settlement of accounts with cold store owners after the accounting period terminating on 25th July, 1941.

(13) The total earnings of the controlled storage space as from 1st February 1941, whether on Ministry goods or on privately owned goods, must be included in the statement of account submitted for each accounting period.

ACCOUNTING ARRANGEMENTS

(14) It is the intention of the Ministry to liquidate by payment as soon as possible the present arrears of rents and charges on Ministry goods. Owners will be required to establish and furnish to the Ministry



particulars of all debts and accrued storage rents and charges due to them by the Ministry as at the 31st January, 1941. Such debts and accrued charges will be paid by the Ministry at the earliest possible date after verification. In calculating accrued charges owners will credit the Ministry for the delivery of all goods in store at 31st January, 1941, at the following rates:-

Meat and Offals .....	2/6d. per ton
Bacon .....	3/0d. per ton
Butter .....	1/9d. per ton

Owners will also be required to establish and furnish to the Ministry particulars of all accrued charges on goods in store at 31st January, 1941, belonging to owners other than the Ministry of Food.

(15) With a view to reducing the time and labour employed in preparing invoices for handling and rent charges and in recording those charges in the books of the Ministry, advantage is being taken of the institution of control to simplify the method of charging out by owners in respect of Ministry of Food commodities. The schedules of rates will be framed with this object in view and, as all accrued charges on goods in store at the date of control will be liquidated separately, the following procedure will be adopted by owners as from 1st February, 1941 in debiting handling and rent charges against the Ministry. Detailed invoices will no longer be sent to the commodity divisions of the Ministry as in the past. In place of these a summary of charges for each commodity stored for the Ministry covering each accounting period, will be sent to the Finance Director, Division VI (Transport and Warehousing), Imperial Hotel, Colwyn Bay, with the statement of account in respect of the accounting period. Such summary will include the charge for handling, receiving and delivery, as well as a weekly rent charge calculated on the stocks in store at the opening of business on each Saturday morning. Supplementary charges will be shown separately on the summary forms and will be accompanied by a debit note giving particulars of each charge. Payment will be made by Division VI (Transport and Warehousing) during the calendar month following the close of each accounting period, provided that the statement of account is received within the fourteen days following the close of such accounting period.

(16) The following are the accounting periods up to the 25th July, 1941:-

1st February, 1941 to 28th March, 1941, inclusive.				
29th March,	"	25th April,	"	"
26th April,	"	30th May,	"	"
31st May,	"	27th June,	"	"
28th June,	"	25th July,	"	"



(17) Rent charges will be calculated on the stock in store on the first day of the storage week, i.e. the stock in store at the opening of business on Saturday morning 1st February, 1941, and each subsequent Saturday morning, the storage week being from the opening of business on Saturday to the close of business on Friday.

(18) Rent and handling charges will be calculated on gross weights, which will be arrived at as follows:-

Butter ..... Net weight plus 12½% for tare.

Meat & Offal ..... Weight to be estimated on the basis of the conversion schedule used for the stock return.

Bacon & Ham ..... Weight to be estimated as follows:-

Bales ..... 10 to the ton.

Boxes ..... 4 to the ton.

$\frac{1}{2}$  Boxes ..... 9 to the ton.

(19) In the case of Meat and Offal, Bacon and Ham, store owners will keep careful record of the actual weights taken at the time of delivery in order that, at the end of the accounting period closing 25th April, 1941, a reconciliation between the estimated and the actual weights can be made and the charges adjusted.

(20) While rent charges will be on a weekly basis and handling charges will be based on intake the debit against the Ministry will be rendered with the statement of account covering each accounting period.

(21) Within fourteen days of the close of each accounting period a statement of account showing the gross revenue and the direct costs in respect of such accounting period will be furnished by owners to the Ministry. A standard form for this statement of account will be forwarded for guidance during the next few days.

Imperial Hotel,  
Colwyn Bay.

January, 1941.



APPENDIX E

General Specifications of Cold Storage Warehouses Constructed by the Ministry of Food

MINISTRY OF FOOD NEW COLD STORES

Main Building. Steel-framed brick structure having three floors. Floors designed for 3 tons. sq. ft. safe load. Intermediate floors uninsulated except first floor in way of air-cooler rooms.

Loading Platforms at ground floor level. 2 side platforms 141' 6" long accommodating 7 rail wagons each. Accommodation for 3 road vehicles at each end of one side platform. Canopy over all platforms.

Cold Rooms

2 on ground floor - A1 and B1  
2 on first floor - A2 and B2  
2 on second floor - A3 and B3

Total Net Capacity about 250,000 cubic ft.

Air Locks. One air lock for each floor on each side of building.

Lifts. Two on one side and one on the other. Total 3. Capacity of each 2 tons. Speed 30/20 ft. per minute. Cage accommodates two four-wheeled trucks.

Stairway to upper floors and flat roof on the side having one lift.

Escape Doors and Ladder from air locks on upper floors to canopy over loading platform on the side having two lifts.

Weighing Machines. Two on one side and one on the other. Total 3. Each to weigh 3,000 lbs. Graduated in lbs. Dormant platforms 4' x 4'.

Engine Room and Office Block. Abuts one end of loading platforms.

Engine Room and Welfare Block. Abuts to other end of loading platforms.

Air Raid Shelters and cycle sheds are situated a short distance from the main buildings. An equipment and general purpose store flanks one air raid shelter.

Accommodation Generally is provided for:-

Manager and 8/12 clerks (male and female)  
Foreman and 46/56 warehousemen  
Chief Engineer and 10 engineering staff (on shifts)



Fire Appliances provided.

MINISTRY OF FOOD

Accommodation and Furniture

OFFICE STAFF

Private Office. For Manager (or store superintendent).

Desk and chair; 2 spare chairs; table; filing cabinet; cupboard; clothes hooks or rack; heating appliance.

Private Office. For Chief Clerk.

Desk and chair; spare chair; filing cabinet; cupboard; safe; table; clothes hooks or rack; heating appliance.

General Office. 8/12 Clerical Staff.

Desks or tables; chairs or stools; cupboards; clothes hooks or racks; heating apparatus.

Mess Room for clerical staff.

Tables; chairs; cupboard; electric kettle(s) - 6 pints; electric oven and hotplate; heating appliance.

Lavatories for office staff male and female.

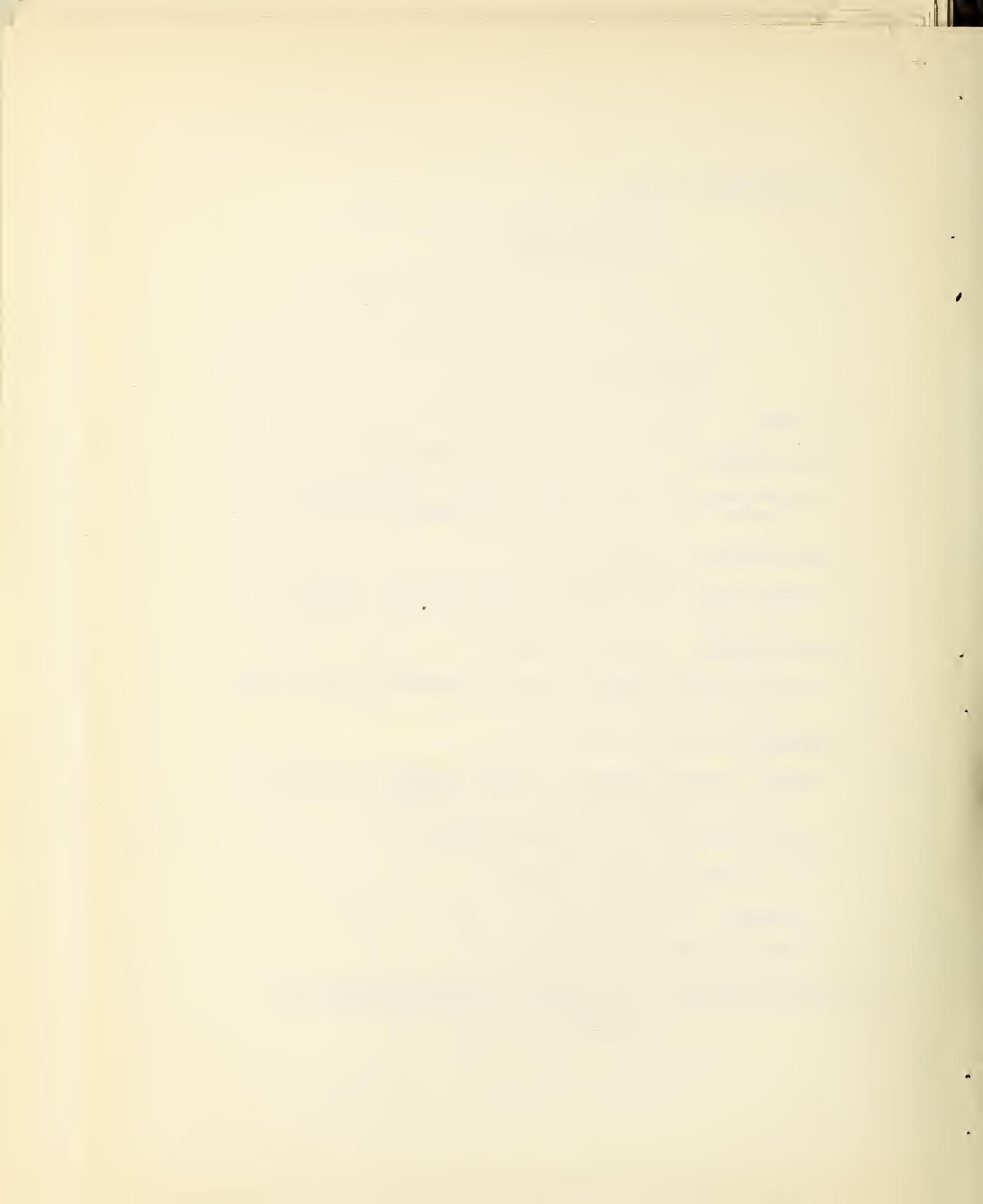
W.C.s 1 female; 2 male; 1 urinal.

Wash Basins.

1 female; 2 male.

REFRIGERATION STAFF.

Chief Engineer, 3 shift engineers, one electrician, six engine attendants (on shifts).



Chief Engineer's Office. In one engine room only.

Desk and chair; spare chair; table; clothes hooks or rack; wash hand basin; heating appliance; first aid box (small).

Engine Room.

Clock; desk for rough log book; heating appliance; clothes hooks or rack; fitters bench complete with vice; lockers for tools; racks for tools; tanks for engine oil; refrigerating oil and paraffin oil. The above for each engine room.

Electric kettle and hotplate in one engine room only.

Engineers' Store Room.

Cupboards; lockers.

Latrines.

1 for engineers (fitted with lock); 1 for attendants; 1 urinal; 1 wash hand basin.

COLD STORES

Foreman's Room one

Desk or table; chair; cupboard; hooks for clothes; heating apparatus; first aid box (large); wash hand basin.

Checkers (or underforeman) six.

Tables or desks; chairs or stools; cupboard; hooks for clothes; electric kettle - 2 pint; electric hotplate; heating apparatus; wash hand basin.

Loading Platform.

Clock on both platforms; desks for weigh clerk by each scale.

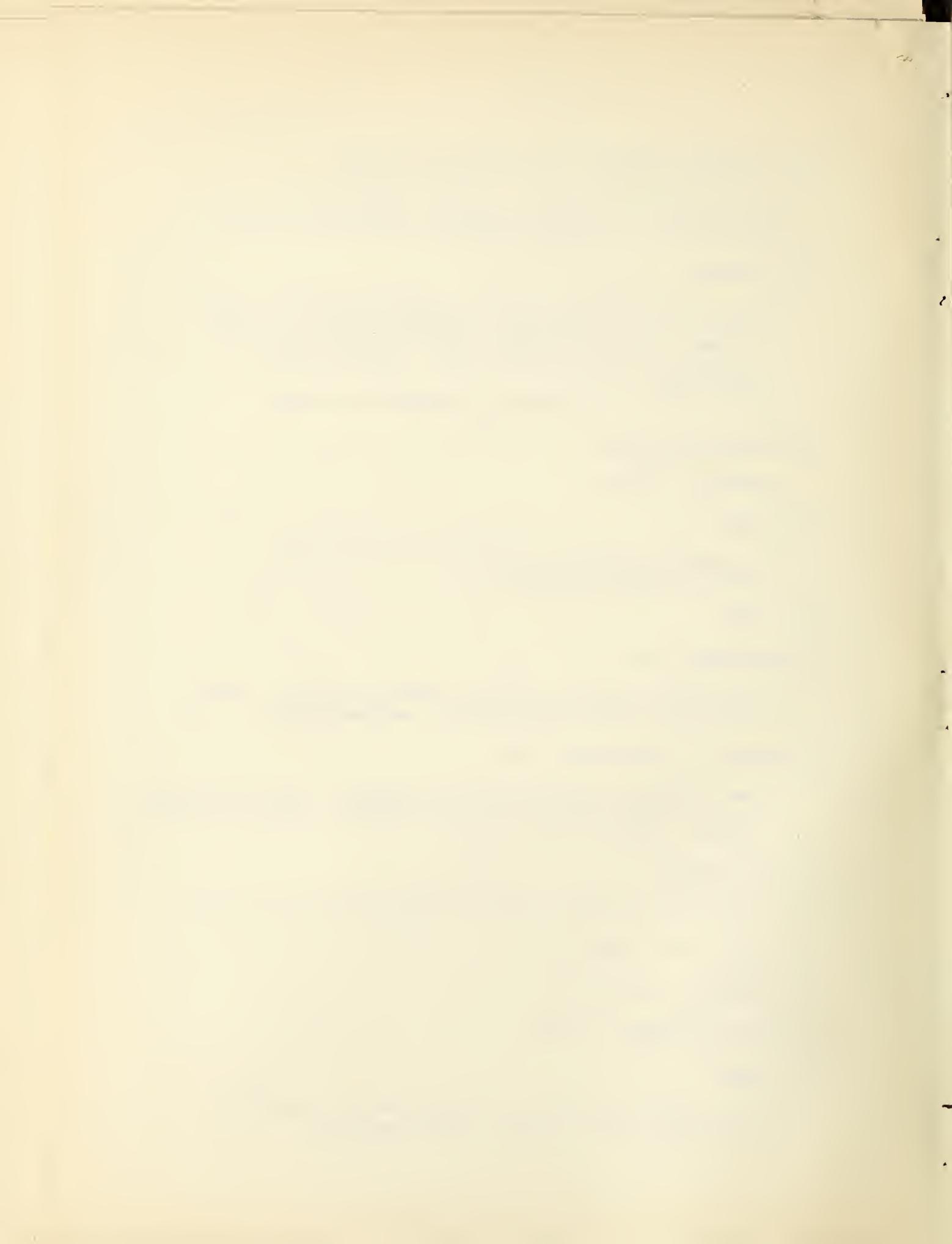
Lavatory. 1 W.C. with lock.

Storeroom with lockers etc.

Porters or Labourers 40/50

Mess Room

Tables; seats; cupboard; hot water boiler - 5 gallons; hot plate; cooker or oven; heating apparatus.



Drying Room. Hanging facilities for drying clothes for 40 persons.

Cloak Room. Hanging facilities for hanging clothes for 40 persons;  
3 washb<sup>ts</sup> (24" x 18")

Toiletries. 3 W.C.s.; 4 Urinals.

Cycle Shed. Sufficient for 30 cycles.

A.R.P. Shelter sufficient for 80 persons.

#### MINISTRY OF FOOD

.....

.....

Refrigerating Installation is supplied and installed by Messrs. J. & E. Hall Ltd. The plant is divided between two engine rooms, one at each end of the main building.

System employed is flooded operating with dry compression.

Compressors (4) two in each engine room. Vertical single acting enclosed type ammonia compressors each having two cylinders 8" bore x 8" stroke running at 400 revolutions per minute, and arranged for vee belt drive.

Compressor Motors (4) of the synchronous type with induction starting, each of 70 B.H.P.

Condensers (4) two in each engine room of the induced draught atmospheric type.

Condenser Fans (4) one for each condenser, set in engine room roof, and each having a capacity of 20,000 cu. ft. per minute.

Water Pumps (4) two in each engine room, one of which is standby. Each direct coupled to electric motor and having a capacity of 400 gallons per minute.

Ammonia Receivers (2) one in each engine room each consisting of two vessels arranged vertically and having a limit capacity of 70% of the total ammonia charge.

Separators (4) one for each compressor.

Rectifiers (2) one in each engine room.



Gas Purifiers (2) one in each engine room.

Air Cooler Rooms (2) in main building. One at each end at ground level.

Air Coolers (4) two in each air cooler room of the wet type having interlaced coils and extended plate surface, mounted above a brine tank and provided with a battery of eliminator plates at each end.

Brine Pumps (4) two in each air cooler room, each direct coupled to electric motor and having a capacity of 450 gallons per minute.

Air Cooler Fans (4) one for each air cooler, of the two-speed reversible axial flow type, each 45" diameter and having a capacity of 35,000/17,500 cu. ft. of air per minute.

Duty of Plant.

Normally one air cooler operates upon the three super-imposed cold rooms adjacent to it, which together form one section, and will maintain any temperature down to zero in its section as required.

The two interconnected coolers in either cooler room will freeze 200 tons of bacon from 60° to 16° F. in four days, the bacon occupying approximately half of any one cold room in the adjacent section. For this operation the capacity of the two fans running at their lower speed can be adjusted between the two halves of the cold room as required, and the circulation reversed from time to time to ensure uniform freezing of the produce.

When working as above on one cooler room, the other cooler room will carry out normal working on the remaining 5 cold rooms.

To attain the above described flexibility adjustable dampers are arranged in suction and delivery ducts, on fan deliveries, and in the central dividing wall between the two sections of the building. All dampers except those in central dividing walls are adjusted from the damper control chambers at each end of each air cooler. Also additional slides are fitted in all ducts in cold rooms for use when capacity of two fans is concentrated on one cold room.

